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BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Forest Insect Laboratory
Coeur d'Alene, Idaho
April 14, 1943

To Officers in Charge of Organizations:

Enclosed is the Annual Forest Insect Status Report for Idaho and Montana for the Calendar Year 1942. It is requested that this report be circularized through that portion of your organization interested in forest protection.

Very truly yours,

James C. Evenden

JAMES C. EVENDEN
Senior Entomologist

Enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

ANNUAL FOREST INSECT STATUS REPORT
IDAHO AND MONTANA
1942

By James C. Evenden
Senior Entomologist
Division of Forest Insect Investigations

INTRODUCTION

A rapidly increased military use for lumber during the past year or more was of a necessity met with a war-time forestry program, with protection as its primary objective. In this program the responsibility of the Forest Insect Laboratory, Coeur d'Alene, Idaho, was a reemphasis of the necessity for reducing to a minimum all insect damage to merchantable timber and the extension of an adequate entomological service to private and public forest-managing agencies and housing projects. This service includes the locating and reporting of all destructive bark beetle infestations, assistance in planning and execution of artificial control, and the classification of white pine stands as to their susceptibility to bark beetle infestations. Although our efforts to meet this obligation were handicapped by a distinct shortage of competent field assistance, it is believed that all potentially serious situations were properly serviced.

In obtaining data necessary for a report of existing infestations all sources of information are utilized. Annual reports from the forest ranger districts and forest supervisors assisted materially in compiling a history of insect infestations throughout the region. It is trusted that all officers of land-managing agencies will continue the valuable service of reporting all questionable forest insect infestations.

SUMMARY TABULATION OF RANGER REPORTS RECEIVED
FROM THE FOREST RANGERS OF REGION 1

	1939	1940	1941	1942
Number of forests reporting	16	17	17	17
Number of ranger districts reporting	94	81	94	38
Number of insect infestations reported	143	104	121	60
Number of reports depicting no infestations	16	28	13	12
Number of Dendroctonus reports	93	64	60	25
Number of fir engraver beetle reports	1	3	4	1
Number of spruce budworm reports	6	3	6	4
Number of hemlock looper reports	12	8	3	
Number of larch sawfly reports	10	11	26	9
Number of miscellaneous reports	21	15	14	10
Increasing infestations	15	24	43	18
Decreasing infestations	43	39	21	10
Normal infestations	66	35	47	24
Infestations reported as no longer existing	18	6	5	4
Status of infestation unknown	1	0	3	4

PRIMARY BARK BEETLE INFESTATIONS

Mountain Pine Beetle (Dendroctonus monticolae Hopk.) in White Pine

Throughout the forests of northern Idaho the mountain pine beetle destroys a large volume of white pine annually, which has depleted some stands to a serious degree. Because of its economic importance, as well as the fact that potentially dangerous endemic infestations of this insect are present in all mature stands, the limited survey program of this laboratory has been directed primarily to the white pine stands of the region. Frequent surveys of these timber stands are necessary if initial stages of dangerous bark beetle infestations are to be foreseen in time for appropriate action to be taken. Last season's surveys were of a necessity directed to areas where potentially dangerous infestations were known to exist or where abnormal situations were reported.

Unusual markets of the past season created a demand for so-called mixed woods. With the cessation of this condition the pendulum of demand will again swing towards its former position, but it is hoped that it will not be complete. A market for the less valuable tree species which grow in association with white pine would simplify its management and permit more effective protection against attacks of destructive bark beetles. Although mountain pine beetle outbreaks can be effectively reduced through the application of direct control, the results are not permanent. A more economic and permanent protection for white pine stands can perhaps be attained through the inauguration of indirect silvicultural control with an objective of preventing epidemics rather than controlling them.

Cabinet National Forest

No abnormal infestations were reported from this forest during the past season. There are some areas where questionable situations exist which will be checked in 1943.

Flathead National Forest

Infestations of the mountain pine beetle in white pine still persist along the south fork of the Flathead River. This situation is considered as being in a normal status, with scattered individual trees and small groups being killed each year.

Kootenai National Forest

During the past season five areas of white pine were included in the survey program of this laboratory. Data obtained are shown in the following table taken from Mr. Terrell's report of this project*:

Unit	Acres	Infested trees per acre 1940	Infested trees per acre 1942	Infested trees on unit 1942	% of stand killed 1942
Pete Creek	2,880	.06	.03	86	.14
Spread Creek	1,280	.05	.14	200	2.00
North Meadow Creek	800	.09	.12	96	.80
South Meadow Creek	600	.29	.05	30	—
Bear Creek	2,240	.11	.03	67	—

From the preceding data it will be seen that a potentially dangerous situation was present in the Spread Creek drainage, where an infestation had developed from a heavy blow-down of pine. Steps were taken to salvage the infested trees.

Clearwater National Forest and Adjacent Private Areas

The following information is taken from Mr. Terrell's report of the Clearwater survey for 1942**:

> Two areas on the Clearwater National Forest and five areas under the jurisdiction of the C.T.P.A. were surveyed during the past season to obtain data relative to the extent of mountain pine beetle infestation in the white pine stands. All of these areas were surveyed in 1941, so the 1942 work was in the nature of a recheck.

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* Kootenai National Forest Insect Survey 1942.

** Forest Insect Survey Clearwater National Forest and Clearwater Timber Protective Association 1942.

The areas surveyed and data taken are given in the following table:

Areas surveyed 1942

Unit	Acres	Infested trees per acre 1941	Infested trees per acre 1942	Infested trees on unit 1942	Percent of stand killed 1942
		National Forest			
Deadhorse	1,280	.25	.74	947	.7
Tepee Creek	1,280	.11	.60	768	1.0
		Clearwater Timber Protective Association			
Benton Creek	6,700	.0	.0	0	0
Butte Creek	2,000	.13	.50	1,000	.7
Thompson Creek	1,700	.12	.20	340	.2
Tepee Creek	640	0	1.25	800	.9
Silver Creek (LPP)	440	.73	1.80	792	4.0

It will be seen that there is a serious infestation in the Deadhorse and Tepee Creek drainages. In fact, this situation is more serious than the data indicate, as the infestation is concentrated upon a rather small portion of the total acreage. Due to the potential seriousness of this infestation, artificial control measures were recommended for the treatment of some 1800 trees in the spring of 1942. Although funds were made available for this project, it is doubtful if sufficient labor can be mustered for its institution.

Coeur d'Alene National Forest

Rangers' reports mentioned persistent losses of white pine throughout their districts, and in one instance called attention to a severe blow-down of white pine in the Big Creek drainage. Such blow-downs are always viewed with apprehension, and a careful examination will be made of this situation during the coming season.

All important white pine areas on this forest were included in the past season's survey program conducted by the Coeur d'Alene Laboratory. The following information has been taken from Mr. Terrell's report of this survey*:

> During the past season a survey of all the most important areas of white pine on the Coeur d'Alene Forest was made to determine the extent of reinfestation by the mountain pine beetle. Included are all of those areas in which control measures have been practiced during any of the past several years and areas that are surveyed biennially.

* Fourteenth Annual Survey of the Coeur d'Alene National Forest 1942.

Although the survey was made with only a few men, a fair coverage of the units was accomplished. All units where control measures have, in recent years, been practiced were surveyed on an average of 3.8 percent. The average coverage of the 52,350 acres was 2.5 percent.

A list of the areas surveyed, acres of area, and a summary of the data taken follow:

Unit	Acres	Infested trees per acre	Infested trees on unit	% of stand killed
		Annual		
Taylors	2,800	.18	504	.6
Forks-Cabin	5,440	.20	1,088	.4
West Fork	3,960	.11	435	.4
Clay Creek	2,320	.17	394	.3
Sissons	4,700	.50	2,350	1.6
N. Yellow Dog	840	.22	184	.8
Downey Creek	4,160	.43	1,789	.7
Yellow Dog River	2,140	.66	1,412	1.4
Yellow Dog Creek	4,120	.11	453	.2
		Biennial		
Rock City	1,600	0	0	0
Miner Creek	1,550	.10	155	.7
West Eagle Creek	3,540	.06	212	.5
Upper Cougar	3,700	.04	148	.2
Lower Cougar	3,600	.06	216	.6
Laverne Creek	2,560	.14	358	.4
Deception Creek	5,320	0	0	0
	52,350			

Although the preceding data show severe infestations in a number of areas, no control measures were recommended.

Kaniksu National Forest

The following information is taken from Mr. Terrell's report covering the 1942 survey of this forest*:

To find the extent to which the mountain pine beetle had infested the white pine stands, several important areas in and adjacent to the Kaniksu National Forest were surveyed during the fall of 1942. The survey of these areas was necessarily extensive in scope because of the shortage of personnel. In some instances less emphasis has therefore been placed on the sample strip data taken than on the reaction or opinion of the writer of the area examined.

* Status of the Mountain Pine Beetle Infestation on Areas of the Kaniksu National Forest 1942.

The following units were surveyed and the data obtained are given briefly:

Area	Acres	Infested trees per acre	Infested trees on unit	% of sample
Rapid Lightning Creek	1,400	.05	70	3.
Sullivan Creek				
Pass Creek	660	.30	200	12.0
Johns Creek	880	.0	0	1.0
Stoney Creek	1,300	.36	470	3.2
Bismark	1,000	.0	0	1.1
Lamb Creek	600	.06	36	2.8
Lion Head (State)	7,200	.06	432	0.7
	13,040			

No serious infestations were recorded, although in the Sullivan Creek drainage there is a spot or two of concentrated infestation. Action was taken to dispose of these hot spots of infestation.

St. Joe National Forest

No areas in this forest were included in this season's survey program, and no alarming situations were reported by the rangers.

Glacier National Park

In the limited white pine areas of the Park there are a few scattered trees infested with the mountain pine beetle.

Mountain Pine Beetle (Dendroctonus monticolae Hopk.) in Lodgepole Pine and Whitebark Pine

Infestations of this insect in lodgepole pine and whitebark pine were reported from the Absaroka, Custer, Flathead, Gallatin, and Clearwater National Forests, and there are no doubt many other infested areas within the region. The most dangerous of these situations is the lodgepole infestation in the Orogrande drainage of the Clearwater Forest area. In this drainage where a mixed lodgepole-white pine stand occurs, if with the reduction of lodgepole, which is now the preferred host, the beetles direct their attacks to white pine, a serious situation will exist. This infestation will be rechecked this season.

Western Pine Beetle (Dendroctonus brevicomis Lec.) in Ponderosa Pine

Scattered losses of ponderosa pine from attacks of the western pine beetle were reported from a number of areas. This is not an unusual condition, as it exists in all stands of mature ponderosa pine, and unfortunately the accumulated loss over a period of years is far more serious than anticipated. The most serious infestation of this insect reported was on the Weiser National Forest, where in a small drainage rather heavy losses have occurred. An examination of this situation showed that the peak of the infestation had passed and that no direct action was necessary.

Douglas Fir Beetle (Dendroctonus pseudotsugae Hopk.) in Douglas Fir

With the increased market for Douglas fir, which is hoped will at least prevail in part during subsequent years, losses of this tree species automatically became of greater economic importance. Infestations of this beetle, which vary in severity, are present in most all Douglas fir stands of the northern Rocky Mountains. Some infestations develop to epidemic proportions, with a large percent of the stand being destroyed in a few years, while others prove to be negligible in importance. Control measures that have been directed against these outbreaks have proved successful, although expensive to conduct.

Douglas fir beetle infestations were reported from the Absaroka, Beaverhead, Flathead, Gallatin, Kootenai, Challis, Boise, and Idaho National Forests. In addition to these reports, infestations are known to be present in Glacier and Yellowstone National Parks as well as in many other areas.

Engelmann Spruce Beetle (Dendroctonus engelmanni Hopk.) in Engelmann Spruce

The Engelmann spruce beetle is present throughout the spruce stands of the region. In most instances it occurs in a normal or endemic status, with only a few scattered trees being destroyed each year. This loss is quite obscure, as the needles fall from infested trees a few weeks after attadk before a marked fading of the foliage occurs. This results in an absence of "red-topped" trees, which is the usual visual evidence of a bark beetle infestation. Dead trees appear as old snags that have been killed for years, when in many instances they are but recently infested. Under conditions favorable to their development, normal populations of this insect increase to epidemic proportions in a few years and large volumes of timber are killed. From 1936 to 1939 a severe epidemic of this beetle destroyed large areas of spruce, with severe damage occurring within the Yellowstone National Park. The only infestation reported this year was from the Gallatin National Forest.

INFESTATIONS OF PRIMARY FOREST DEFOLIATORS

Insects which feed upon the foliage of forest trees present a difficult problem in forest protection. When populations of these foliage-feeding insects develop to epidemic proportions, large forest areas are infested. To destroy such pests their food plants must be treated with a poisonous spray or dust, a difficult and expensive operation. Although most of these outbreaks last only a few years, the resulting injury is so severe that large volumes of timber are often destroyed. Trees which are not killed by defoliation are weakened so badly they become an easy prey to the attacks of bark beetles.

Larch Sawfly (Nematus erichsonii Hartig)

Available records show the larch sawfly as appearing in the western United States in 1933. Since its discovery the outbreak has spread south and westward from the Flathead National Forest, where it was first recorded, until at this time there are few if any larch stands in northern Idaho and western Montana that are not or have not been infested. Fortunately larch is quite resistant to defoliation, so that very little damage has occurred. Many trees which are stripped of all foliage counteract the injury by producing a second complement of needles the same season. It is difficult to predict the future of this outbreak, for although there have been no losses of timber, a repeated defoliation for a number of years may result in severe damage. Outbreaks of the larch sawfly were reported from the Flathead, Kootenai, Coeur d'Alene, Kaniksu, and St. Joe National Forests, with known infestation within the Glacier National Park and other forest areas.

Spruce Budworm (Harmologa fumiferana Clem.)

Since 1922, when the spruce budworm was first reported in this region, it has been responsible for the destruction of large volumes of Douglas fir and other tree species of the region. Outbreaks of this insect were reported from the Flathead, Gallatin, Helena, Lolo, and Nezperce National Forests, and the Yellowstone National Park, where it would seem that rather serious infestations prevail.

Hemlock Looper (Ellopia fiscellaria lugubrosa Hlst)

It will be recalled that this insect appeared in epidemic numbers throughout northern Idaho and western Montana in 1937, and for the following two years large areas of fir and associated tree species along ridge tops were severely defoliated. Although a large percent of the defoliated timber died as a direct result of the injury, no serious economic loss occurred aside from the creation of increased fire hazards. During the past season one infestation was reported from the Cabinet National Forest, although it was not considered as an abnormal situation.

MISCELLANEOUS INSECT INFESTATIONS

Western Balsam Bark Beetle (Dryocoetes confusus Sw.)
Fir Engraver (Scolytus ventralis Lec.)

Throughout the northern Rocky Mountain region the above-named insects are responsible for a heavy annual loss of alpine fir and white fir respectively. This loss is not overly serious, as both tree species constitute primary forest types, and as old mature trees are killed they are replaced with trees of the same species. The severity of these losses varies from individual trees and small groups to the destruction of a large percent of the stand over large acreages.

Oregon Pine Engraver (Ips oregoni Eichh.)

Only one report was received during the past season relative to damage by the Oregon pine engraver. A report from the Kootenai National Forest indicated damage to a residual stand of ponderosa pine following logging. This is not an uncommon occurrence, but fortunately such outbreaks are short-lived. Sporadic outbreaks of the Oregon pine engraver are quite common around sporadic wood cutting, where considerable damage to small trees and reproduction occurs.

Spruce Gall Aphid (Adelges cooleyi Gill)
Wooly Pine Louse (Pineus pinifoliae Fitch)

The spruce gall aphid is a common enemy of spruce. It causes little damage aside from the unsightly appearance imparted to ornamental trees. On the other hand, the wooly pine louse, reported from two forests and known to be present in many other areas, is a serious enemy of small white pine trees. On the Flathead National Forest, trees 6 inches or more in diameter were dying, apparently as a result of this infestation.

Tip Moth (Rhyacionia sp.)

Reports from the Custer National Forest indicate a reduction in the severity of the pine tip moth. Increased precipitation is advanced in explanation of this favorable condition.

Lodgepole Needle Tier (Argyrotaenia pinatubana)
Pitch Nodule Moth (Petrova albicapitana Busck)

An outbreak of these two insects working in association was again reported from the Custer National Forest and Yellowstone National Park, where it would seem that there has been little if any change in the status of this situation.

Engelmann Spruce Weevil (Pissodes engelmanni Hopk.)

Outbreaks of the Engelmann spruce weevil were reported for the second time from the Custer, and for the first time from the Kootenai National Forest. Within the Picket Pin drainage of the Custer National Forest a large percentage of the terminal leaders of spruce reproduction have been destroyed by this insect, while on the Kootenai the outbreak is considered as being relatively new with damage to spruce terminals being confined to a small area.

Forest Tent Caterpillars (Malacosoma disstria Hbn.)

Outbreaks of the forest tent caterpillar were recorded from St. Regis, Montana, and Cataldo, Idaho. No specific damage resulted, as the alder trees which were defoliated produced a second complement of leaves later in the summer.

CONCLUSIONS

It can be said that the forest insect situation within the northern Rocky Mountain region is quite satisfactory. Although there are some potentially dangerous white pine infestations, it is hoped that they will not develop to severe epidemic conditions. During the coming season the Coeur d'Alene Forest Insect Laboratory will provide as thorough an entomological service as possible, in order that when necessary and feasible appropriate action can be taken to avert the occurrence of destructive insect outbreaks.